

Application No.: 10/731,811  
 Supplemental Amdt. Dated: November 3, 2005

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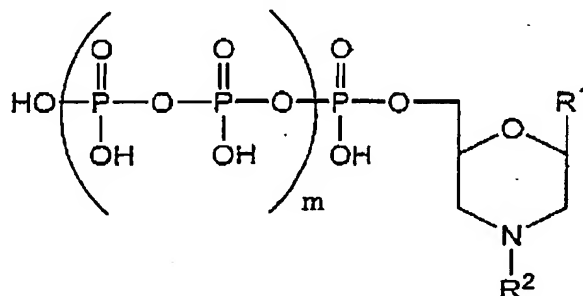
### Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

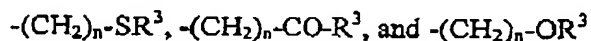
### Listing of Claims:

Claim 1 (Canceled).

Claim 2 (Previously Presented): A morpholino-nucleotide of the formula:



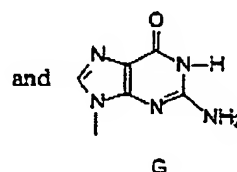
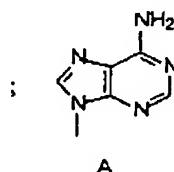
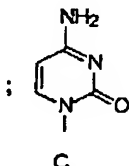
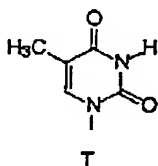
wherein  $R^1$  represents a nucleic base,  $m$  is 0 or 1, and  $R^2$  is selected from the group consisting of:



in which  $n$  is an integer ranging from 1 to 12 and  $R^3$  is selected from the group consisting of a label, a protein, an enzyme, a fatty acid, and a peptide.

Claim 3 (Previously Presented): The morpholino-nucleotide of claim 2 wherein  $R^1$  is a natural nucleic base selected from the group consisting of adenine, guanine, cytosine, thymine, uracil, xanthine, hypoxanthine, and 2-aminopurine.

Claim 4 (Previously Presented): The morpholino-nucleotide of claim 2 wherein  $R^1$  is selected from the group consisting of:



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Claim 5 (Previously Presented): The morpholino-nucleotide of claim 2 wherein R<sup>3</sup> is a label selected from the group consisting of radioactive products, luminescent products, electroluminescent and fluorescent products, and enzymatic labels.

Claim 6 (Previously Presented): The morpholino-nucleotide of claim 5 wherein R<sup>1</sup> is a natural nucleic base selected from the group consisting of adenine, guanine, cytosine, thymine, uracil, xanthine, hypoxanthine, and 2-aminopurine.

Claim 7 (Previously Presented): The morpholino-nucleotide of claim 2 wherein R<sup>3</sup> is a fluorophore.

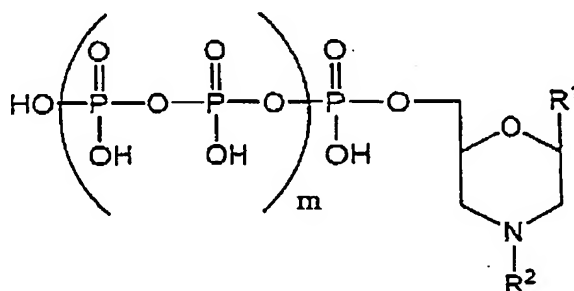
Claim 8 (Previously Presented): The morpholino-nucleotide of claim 7 wherein R<sup>1</sup> is a natural nucleic base selected from the group consisting of adenine, guanine, cytosine, thymine, uracil, xanthine, hypoxanthine, and 2-aminopurine.

Claim 9 (Previously Presented): The morpholino-nucleotide of claim 2 wherein R<sup>3</sup> is selected from the group consisting of fluorescein, biotin, and rhodamine.

Claim 10 (Previously Presented): The morpholino-nucleotide of claim 9 wherein R<sup>1</sup> is a natural nucleic base selected from the group consisting of adenine, guanine, cytosine, thymine, uracil, xanthine, hypoxanthine, and 2-aminopurine.

Claim 11 (Previously Presented): The morpholino-nucleotide of claim 2 wherein m is 0.

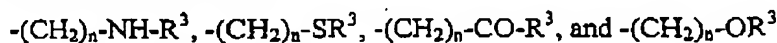
Claim 12 (Previously Presented): A morpholino-nucleotide of the formula:



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wherein  $R^1$  is a natural nucleic base selected from the group consisting of guanine, cytosine, thymine, uracil, xanthine, hypoxanthine, and 2-aminopurine;  $m$  is 0 or 1; and  $R^2$  is selected from the group consisting of:



in which  $n$  is an integer ranging from 1 to 12 and  $R^3$  is selected from the group consisting of a label, a protein, an enzyme, a fatty acid, and a peptide.

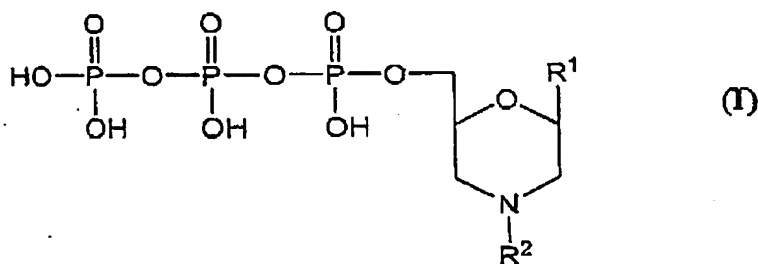
Claim 13 (Previously Presented): The morpholino-nucleotide of claim 12 wherein  $R^3$  is a label selected from the group consisting of radioactive products, luminescent products, electroluminescent and fluorescent products, and enzymatic labels.

Claim 14 (Previously Presented): The morpholino-nucleotide of claim 12 wherein  $R^3$  is a fluorophore.

Claim 15 (Previously Presented): The morpholino-nucleotide of claim 12 wherein  $R^3$  is selected from the group consisting of fluorescein, biotin, and rhodamine.

Claim 16 (Previously Presented): The morpholino-nucleotide of claim 12 wherein  $m$  is 0.

Claim 17 (Previously Presented): A morpholino-nucleotide of formula I:



wherein  $R^1$  is a nucleic base selected from the group consisting of adenine, guanine, cytosine, and thymine;  $R^2$  is  $-(CH_2)_4-NH-R^3$ ; and  $R^3$  is  $-C(S)-NH$ -fluorescein.

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**Claims 18-32 (Canceled).**